

Richard Kha

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 [Richard Kha](#) |  [kRichard32](#)

Toronto, Ontario, Canada

RESEARCH EXPERIENCE

• Optimizing remote JIT compilation for the JVM

May 2024 - August 2024

Undergraduate researcher

- Developed benchmarking tools to measure the speed of the JITServer
- Implemented scheduling algorithms in order to improve the performance of the JITServer
- Created a scheduling algorithm which reduces client runtime by up to 9% in high load scenarios
- Co-wrote the [paper](#) on our findings and performed an oral presentation at HotInfra '24
- Done in collaboration with IBM CAS

• Automating Data Analysis for Enhancing ASD Therapy Sessions

September 2024 - December 2024

Undergraduate researcher

- Implemented a diarization model from a recent paper in order to improve diarization accuracy
- Conducted tests on diarization models in order to determine change in diarization quality
- Created an improved version of the diarization model with increased accuracy in the child-adult speech scenario
- Implemented an algorithm to create transcriptions with speaker labels more accurately given imperfect diarization and transcription
- Wrote a brief [report](#) on our findings

EDUCATION

• University of Toronto

September 2021 - August 2025

B.Sc. in Computer Science (Honours)

Toronto, Canada

- GPA: 3.95/4.00
- Relevant coursework: Data Structures & Analysis, Algorithm design & Analysis, Operating Systems, Introduction to Databases, Introduction to Image Understanding, Knowledge Representation & Reasoning, Neural Networks & Deep Learning, Capstone Design Project

PEER-REVIEWED WORKSHOP PUBLICATIONS

- [1] R. Kha, N. Sreekumar, A. Khrabrov, E. de Lara, A. Brown, M. Gabel, M. Pirvu. (2024). [Towards Optimal Remote JIT Compilation Scheduling for the JVM](#). 2nd Workshop on Hot Topics in System Infrastructure (HotInfra 2024) held in conjunction with SOSP 2024. November 2024.

PROJECTS

• Bumblebench for JITserver benchmarking: [Tools used for JITServer benchmarking]

May 2024 - September 2024

Tools: [Python, Java, Docker, JSON]



- Developed scripts in order to run benchmarks on a JITServer under high load
- Used Docker to containerize and limit the JITServer
- Used JSON files to create configurations for the JITServer
- Developed scripts in order to produce graphs to analyze performance of the JITServer

• Capital City: [A monopoly clone]

October 2022 - December 2022, July 2023 - October 2023

Tools: [Java, Java Swing, Gradle]



- Developed a clone of monopoly
- Implemented graphics, sound, game play, etc.
- Implemented multiplayer via sockets and a server
- Implemented concurrency mechanisms
- Implemented persistence mechanisms



• Capital City Server: [A server for the Capital City application]

September 2023 - October 2023


Tools: [Java]



- Developed a server that can connect to capital city clients in order to facilitate multiplayer experience

- Networking is done via sockets
- **Crazy Minigames: [A rhythm game and fighting game application]** *March 2021 - July 2021, May 2023 - June 2023*
Tools: [Java, JavaFX] 
 - Developed a fighting game and rhythm game in a single application
 - Implemented graphics, sound, game play, etc.
- **Custom Tetris: [A modern tetris clone]** *January 2020 - February 2020, February 2024 - February 2024*
Tools: [Java, JavaFX] 
 - Created a clone of Tetris which implements modern Tetris gameplay features
 - Implemented graphics, sound, game play, etc.

VOLUNTEER EXPERIENCE

- **Coding/Math Tutor** *August 2021 - Present*
YDC - Youth Dream Canada 
 - Mentored students in a 1 on 1 setting in computer science and math
 - Developed skills in teaching others more effectively and clearly
- **Recognized Study Group Leader** *September 2022 - December 2022*
University of Toronto
 - Set up meetings and coordinated a study group for MAT237 (Multivariable Calculus with Proofs)
 - Developed stronger presentation and communication skills

HONORS AND AWARDS

- **Undergraduate Student Research Award (USRA)** *May 2024 - September 2024*
Natural Sciences and Engineering Research Council of Canada (NSERC) 
 - Award to support summer research done in 2024
- **The Friends of Victoria University Library Scholarship** *September 2023*
University of Toronto 
 - Awarded to students who achieved overall A standing in second year
- **Margaret Slater Scholarship from the Senate of Victoria University** *September 2022*
University of Toronto 
 - Awarded to students who achieved overall A standing in first year
- **University of Toronto Scholars Award** *September 2021*
University of Toronto 
 - Awarded to outstanding secondary school students on admission